

MANUFACTURE OF SEMICONDUCTOR ELEMENT

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Abstract

PURPOSE: To easily enable the electrical isolation between elements by exposing mesa structures having a face 110 and a face 111 on a group IV crystal substrate, and subsequently forming a III-V compound semiconductor layer by an atomic layer epitaxial growth method.

CONSTITUTION: Mesa structures 13, 14 having a face 110 and a face 111 are exposed on a group IV crystal substrate. And a III-V compound semiconductor layer 15 is formed an atomic layer epitaxial growth method. In the epitaxial growth on the face 110, point defects occur so that a deep level occurs in the semiconductor on the face 110 and the semiconductor is provided with a high resistance. Since the occurrence of point defects is low if an atomic layer epitaxial growth is performed on the face 111, little deep level occurs. Accordingly, the semiconductor on this face 111 can be controlled of the conductivity type and can be used as an active layer.